

CLAIMS

1.- A system for recognizing documents provided with a security mark comprising a substance which is excitable when a light coming from a corresponding light source is emitted on it so as to emit light at different wavelengths, the system  
5 comprising

a monochromatic light source for exciting the substance; and

at least two detector assemblies (3) for detecting light emitted by the excitable substance of the security mark of the document to be recognized;

each detector assembly (3) being associated to a system for electronic  
10 processing defined by a filter (7) and an amplifier (8), connected to a single microprocessor;

each detector assembly (3) being integrated in a body (9) that groups together all the detector assemblies (3) for detecting the light emitted by the excitable substance of the security mark, said detector assemblies being directed towards a common point,  
15 in order that the intensities of the light emitted by the mark, at different wavelengths ( $\lambda_1$ - $\lambda_9$ ), be detected by the detector assemblies, the microprocessor being arranged to analyze the detected light intensities at different wavelengths comparing them with a set of values stored in a memory of the microprocessor, for the purpose of determining whether the document recognized is an authentic document or a counterfeit document.

20 2.- A system according to claim 1, wherein the light source comprises a diode laser (1) of small dimensions and with focused light, so that all of the light output is at a narrow wavelength and at one point.

3.- A system according to claim 1 or 2, wherein each detector assembly (3) is defined by a photodiode (4), a filter (5) and a lens (6), duly encapsulated.

25 4.- A system according to claim 3, wherein the filters (5) are selected so that different detector assemblies (3) detect the intensity of light corresponding to different wavelengths ( $\lambda_1$ - $\lambda_9$ ).

5.- A system according to any of the preceding claims, wherein the elements forming part of the system are arranged so that the detection path length is very short, whereby a better optical tolerance with regard to the banknote pass distance, and a  
30 small-sized and low cost equipment, are obtained.

6.- A system according to any of the preceding claims, wherein the system incorporates a presence detector determining the placement of the security mark on the document to be recognized.

35 7.- A system according to any of the preceding claims, wherein the light source

is provided with a filter for achieving the necessary monochromatic character.

8.- A system according to any of the preceding claims, wherein the light source comprises a diode laser.

5 9.- A system according to claim 8, wherein the diode laser is a modulated frequency diode laser (1).

10 10.- A system according to any of the preceding claim, the system being arranged to analyze relative intensities of light emitted by the excitable substance at different wavelengths ( $\lambda_1$ - $\lambda_9$ ) detected by the respective detector assemblies (3), the wavelengths being determined by the respective filters (5) integrated in the respective detector assemblies.

15 11.- A system according to any of the preceding claims, the system being arranged to determine, with the definition of a threshold, the existence or non-existence of emission of light by the excitable substance, at different wavelengths ( $\lambda_1$ - $\lambda_9$ ) detected by the respective detector assemblies (3), the wavelengths being determined by the respective filters (5) integrated in the respective detector assemblies.

12.- A system for recognizing documents according to any of the preceding claims, wherein the detector assemblies (3) are arranged for detecting light emitted, by reflection, by the excitable substance of the security mark.

20 13.- A system for recognizing documents according to any of claims 1-11, wherein the detector assemblies (3) are arranged for detecting light emitted, by transmission, by the substance of the security mark.